AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A signal processing building block for use in an adaptive signal processing system comprising:

a main input channel which receives a main input signal;

an auxiliary input channel which receives an auxiliary input signal; and

a processing mechanism that:

generates a complex adaptive weight,

the complex adaptive weight including a sample median value of a real part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal, and a sample median value of an imaginary part of the ratio of a main input weight training data signal to an auxiliary input weight training data signal, and

applies the computed complex adaptive weight to a function of the main input signal and the auxiliary input signal to generate an output signal.

2. (Cancelled)

3. (Currently Amended) ~~An adaptive signal processing system as in claim 1, wherein the processing system generates a~~ A signal processing building block for use in an adaptive

signal processing system comprising:

a main input channel which receives a main input signal;

an auxiliary input channel which receives an auxiliary input signal; and

a processing mechanism that:

generates a complex adaptive weight, and

applies the computed complex adaptive weight to a function of the main input signal and the auxiliary input signal to generate an output signal,

the complex adaptive weight ~~which comprises~~ comprising a sample median value of ~~the~~ a real part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal.

4. (Currently Amended) ~~An adaptive signal processing system as claimed in claim 1,~~

A signal processing building block for use in an adaptive signal processing system comprising:

a main input channel which receives a main input signal;

an auxiliary input channel which receives an auxiliary input signal; and

a processing mechanism that:

generates a complex adaptive weight, and

applies the computed complex adaptive weight to a function of the main input signal and the auxiliary input signal to generate an output signal,

wherein the processing mechanism generates the complex adaptive weight, w_{med}, ~~by~~

~~solving the equation:~~ according to

$$w_{med} = \underset{k=1\ to\ K}{MED}\left[real\left(\frac{z(k)^*}{x(k)^*} \right) \right] + j\left\{ \underset{k=1\ to\ K}{MED}\left[imag\left(\frac{z(k)^*}{x(k)^*} \right) \right] \right\}$$

where K is the number of weight training data samples, z is the main input signal, j is a unit imaginary number, and x is the auxiliary input signal.

5. (Currently Amended) ~~An adaptive signal processing system~~ A signal processing building block as claimed in claim 4, wherein the processing mechanism generates the output signal, r, ~~by solving the equation:~~ according to $r = z - w^*_{med}\ x$.

6. (Currently Amended) An adaptive signal processing system for receiving a plurality of input signals corresponding to a common target signal and for sequentially decorrelating the input signals to cancel the correlated noise components therefrom, the adaptive signal processing system comprising:

a plurality of building blocks arranged in a cascaded configuration for sequentially decorrelating each of the input signals from each other of the input signals to thereby yield a single filtered output signal;

wherein each building block includes:

a local main input channel which receives a local main input signal,

a local auxiliary input channel which receives a local auxiliary input signal,

and

a processing mechanism that

calculates a complex adaptive weight, and

generates a local output signal, utilizing the complex adaptive weight,

the complex adaptive weight comprising a sample median value of a real part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal, and a sample median value of an imaginary part of the ratio of the main input weight training data signal to the auxiliary input weight training data signal.

7. (Cancelled)

8. (Original) An adaptive signal processing system as in claim 6, wherein each building block supplies the local output signal to a local output channel.

9. (Currently Amended) ~~An adaptive signal processing system as claimed in claim 6;~~ An adaptive signal processing system for receiving a plurality of input signals corresponding to a common target signal and for sequentially decorrelating the input signals to cancel the correlated noise components therefrom, the adaptive signal processing system comprising:

a plurality of building blocks arranged in a cascaded configuration for sequentially decorrelating each of the input signals from each other of the input signals to thereby yield a

single filtered output signal;

wherein each building block includes:

a local main input channel which receives a local main input signal,

a local auxiliary input channel which receives a local auxiliary input signal, and

a processing mechanism that

calculates a complex adaptive weight, and

generates a local output signal, utilizing the complex adaptive weight,

wherein each building block generates the complex adaptive weight, w_{med}, according to ~~by solving the equation:~~

$$w_{med} = \underset{k=1\ to\ K}{MED}\left[real\left(\frac{z(k)^*}{x(k)^*}\right)\right] + j\left\{\underset{k=1\ to\ K}{MED}\left[imag\left(\frac{z(k)^*}{x(k)^*}\right)\right]\right\}$$

where K is the number of weight training data samples, z is the local main input signal, j is a unit imaginary number, and x is the local auxiliary input signal; and

each building block generates the local output signal, r, according to ~~by solving the equation:~~

$r = z - w^*_{med}\ x.$

10. (Currently Amended) An adaptive signal processing method comprising:

receiving a plurality of input signals corresponding to a common target signal;

inputting the input signals into a plurality of building blocks arranged in a cascade configuration for sequentially decorrelating each of the input signals from each other of the input signals;

generating a single filtered output signal;

wherein each building block includes a local main input channel which receives a local main input signal, a local auxiliary input channel which receives a local auxiliary input signal, and a processing mechanism that calculates a complex adaptive weight [[,]] and generates a local output signal, utilizing the complex adaptive weight,

the processing mechanism calculating the complex adaptive weight w_{med} by calculating a sample median value of a real part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal and calculating a sample median value of an imaginary part of the ratio of the main input weight training data signal to the auxiliary input weight training data signal.

11. (Cancelled)

12. (Currently Amended) ~~An adaptive signal processing method as in claim 10,~~ An adaptive signal processing method comprising:

receiving a plurality of input signals corresponding to a common target signal;

inputting the input signals into a plurality of building blocks arranged in a cascade configuration for sequentially decorrelating each of the input signals from each other of the input signals;

generating a single filtered output signal;

wherein each building block includes a local main input channel which receives a local main input signal, a local auxiliary input channel which receives a local auxiliary input signal, and a processing mechanism that generates a complex adaptive weight, and generates a local output signal, utilizing the complex adaptive weight,

wherein ~~each building block generates~~ said processing mechanism generates the complex adaptive weight w_{med} by calculating a sample median value of ~~the~~ a real part of ~~the~~ a ratio of a main input weight training data signal to an auxiliary input weight training data signal.

13. (Currently Amended) ~~An adaptive signal processing method as in claim 10,~~ An adaptive signal processing method comprising:

receiving a plurality of input signals corresponding to a common target signal;

inputting the input signals into a plurality of building blocks arranged in a cascade configuration for sequentially decorrelating each of the input signals from each other of the input signals;

generating a single filtered output signal;

wherein each building block includes a local main input channel which receives a local main input signal, a local auxiliary input channel which receives a local auxiliary input signal, and a processing mechanism that calculates a complex adaptive weight, and generates a local output signal, utilizing the complex adaptive weight,

wherein each building block ~~generates~~ calculates the complex adaptive weight w_{med} by calculating a sample median value of ~~the~~ an imaginary part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal.

14. (Currently Amended) ~~An adaptive signal processing method as claimed in claim 10,~~ An adaptive signal processing method comprising:

receiving a plurality of input signals corresponding to a common target signal;

inputting the input signals into a plurality of building blocks arranged in a cascade configuration for sequentially decorrelating each of the input signals from each other of the input signals;

generating a single filtered output signal;

wherein each building block includes a local main input channel which receives a local main input signal, a local auxiliary input channel which receives a local auxiliary input signal, and a processing mechanism that calculates a complex adaptive weight, and generates a local output signal, utilizing the complex adaptive weight,

wherein each building block ~~generates~~ calculates the complex adaptive weight, w_{med}, according to ~~by solving the equation:~~

$$w_{med} = \underset{k=1\ to\ K}{MED}\left[real\left(\frac{z(k)^*}{x(k)^*} \right) \right] + j\left\{ \underset{k=1\ to\ K}{MED}\left[imag\left(\frac{z(k)^*}{x(k)^*} \right) \right] \right\}$$

where K is the number of weight training data samples, z is the local main input signal, j is the unit imaginary ~~vector~~ number, and x is the local auxiliary input signal.

15. (Original) An adaptive signal processing method as claimed in claim 14, wherein each building block generates the local output signal, r, by solving the equation:

$r = z - w^*_{med}\, x.$

16. (Currently Amended) An adaptive signal processing system comprising:

~~a~~ means for receiving a plurality of input signals corresponding to ~~the~~ a same target signal;

~~a~~ means for inputting the input signals into a plurality of building blocks arranged in a cascade configuration for sequentially decorrelating each of the input signals from each other of the input signals;

~~a~~ means for generating a single filtered output signal;

wherein each building block includes ~~a~~ means for receiving a local main input signal, ~~a~~ means for receiving a local auxiliary input signal, and ~~a~~ processing means for calculating a complex adaptive weight[[,]] and generating a local output signal, utilizing the complex adaptive weight.

the complex adaptive weight w_{med} comprising a sample median value of a real part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal, and a sample median value of an imaginary part of the ratio of a main input weight training data signal to the auxiliary input weight training data signal.

17. (Cancelled)

18. (Currently Amended) ~~An adaptive signal processing system as in claim 16,~~ An adaptive signal processing system comprising:

means for receiving a plurality of input signals corresponding to ~~the~~ a same target signal;

means for inputting the input signals into a plurality of building blocks arranged in a cascade configuration for sequentially decorrelating each of the input signals from each other of the input signals;

means for generating a single filtered output signal;

wherein each building block includes ~~a~~ means for receiving a local main input signal, ~~a~~ means for receiving a local auxiliary input signal, and ~~a~~ processing means for calculating a complex adaptive weight and generating a local output signal, utilizing the complex adaptive weight,

wherein the complex adaptive weight w_{med} comprises a sample median value of ~~the~~ a real part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal.

19 . (Currently Amended) ~~An adaptive signal processing system as claimed in claim 16,~~ An adaptive signal processing system comprising:

means for receiving a plurality of input signals corresponding to a same target signal;

means for inputting the input signals into a plurality of building blocks arranged in a cascade configuration for sequentially decorrelating each of the input signals from each other of the input signals;

means for generating a single filtered output signal;

wherein each building block includes means for receiving a local main input signal, means for receiving a local auxiliary input signal, and processing means for calculating a complex adaptive weight and generating a local output signal, utilizing the complex adaptive weight,

wherein each building block ~~generates~~ calculates the complex adaptive weight, w_{med}, according to ~~by solving the equation:~~

$$w_{med} = \underset{k=1\,to\,K}{MED}\left[real\left(\frac{z(k)^*}{x(k)^*} \right) \right] + j\left\{ \underset{k=1\,to\,K}{MED}\left[imag\left(\frac{z(k)^*}{x(k)^*} \right) \right] \right\}$$

where K is the number of weight training data samples, z is the local main input signal, j is the unit imaginary ~~vector~~ number, and x is the local auxiliary input signal; and

generates the local output signal, r, ~~according to by solving the equation:~~

$r = z - w^*_{med} x.$

20. (Currently Amended) An adaptive signal processing system for receiving a plurality input signals corresponding to a common target signal and for sequentially decorrelating the input signals to cancel the correlated noise components therefrom, the adaptive signal processing system comprising:

a plurality of building blocks arranged in a cascaded configuration having N input channels and N-1 rows of building blocks, for sequentially decorrelating each of the input signals from each other of the input signals to thereby yield a single filtered output signal;

wherein each row of building blocks has a first end building block which is fed originally by a main input channel and a last end building block opposite said first end building block,

wherein each building block includes:

a local main input channel which receives a local main input signal,

a local auxiliary input channel which receives a local auxiliary input signal, and

a processing mechanism that calculates a complex adaptive weight and generates a local output signal, utilizing the complex adaptive weight;

wherein said last end building block supplies the local output signal to a separate local output channel for follow on processing,

wherein said complex adaptive weight comprises: a sample median value of a real part of a ratio of a main input weight training data signal to an auxiliary input weight training data signal, and a sample median value of an imaginary part of the ratio of a main input

weight training data signal to the auxiliary input weight training data signal.

21. (Previously Presented) An adaptive signal processing system as in claim 20, wherein the Nth input channel is supplied for follow on processing.

22. (Cancelled)

23. (Currently Amended) ~~An adaptive signal processing system as in claim 20~~, An adaptive signal processing system for receiving a of plurality input signals corresponding to a common target signal and for sequentially decorrelating the input signals to cancel the correlated noise components therefrom, the adaptive signal processing system comprising:

a plurality of building blocks arranged in a cascaded configuration having N input channels and N-1 rows of building blocks, for sequentially decorrelating each of the input signals from each other of the input signals to thereby yield a single filtered output signal;

wherein each row of building blocks has a first end building block which is fed originally by a main input channel and a last end building block opposite said first end building block,

wherein each building block includes:

a local main input channel which receives a local main input signal,

a local auxiliary input channel which receives a local auxiliary input signal, and

a processing mechanism that calculates a complex adaptive weight and generates a local output signal, utilizing the complex adaptive weight;

wherein said last end building block supplies the local output signal to a separate local output channel for follow on processing,

wherein said complex adaptive weight comprises a sample median value of ~~the~~ a real part of a ratio of a main input weight training data signal to an auxiliary input weight training

data signal.

24. (Currently Amended) ~~An adaptive signal processing system as in claim 20~~, An adaptive signal processing system for receiving a plurality input signals corresponding to a common target signal and for sequentially decorrelating the input signals to cancel the correlated noise components therefrom, the adaptive signal processing system comprising:

a plurality of building blocks arranged in a cascaded configuration having N input channels and N-1 rows of building blocks, for sequentially decorrelating each of the input signals from each other of the input signals to thereby yield a single filtered output signal;

wherein each row of building blocks has a first end building block which is fed originally by a main input channel and a last end building block opposite said first end building block,

wherein each building block includes:

a local main input channel which receives a local main input signal,

a local auxiliary input channel which receives a local auxiliary input signal, and

a processing mechanism that calculates a complex adaptive weight and generates a local output signal, utilizing the complex adaptive weight;

wherein said last end building block supplies the local output signal to a separate local output channel for follow on processing,

wherein said complex adaptive weight w_{med} is calculated according to ~~generated by solving the equation:~~

$$w_{med} = \underset{k=1\ to\ K}{MED}\left[real\left(\frac{z(k)^*}{x(k)^*}\right)\right] + j\left\{\underset{k=1\ to\ K}{MED}\left[imag\left(\frac{z(k)^*}{x(k)^*}\right)\right]\right\},$$

where K is the number of weight training data samples, z is the local main input signal, j is the unit imaginary number ~~vector~~, and x is the local auxiliary input signal; and the local

output signal r is generated by solving ~~the equation:~~

$$r = z - w^*_{med} x.$$

25. (New) An adaptive signal processing method comprising:

receiving a plurality of input signals;

at least once inputting the input signals into a plurality of building blocks arranged in a cascade configuration;

sequentially approximately decorrelating each of the input signals from each other of the input signals; and

generating a filtered output signal;

wherein said decorrelating includes each building block generating a complex adaptive weight w_{med} by calculating a sample median value of a ratio of a main input weight training data signal to an auxiliary input weight training data signal and generating a local output signal utilizing the complex adaptive weight,

each building block including a local main input channel which receives a local main input signal, a local auxiliary input channel which receives a local auxiliary input signal, and a processing mechanism that calculates the complex adaptive weight and generates the local output signal utilizing the complex adaptive weight.

26. (New) A method according to claim 25, wherein at least one input signal comprises a common target signal or the output signal of the processing mechanism.

27. (New) An adaptive signal processing method comprising:

receiving a plurality of input signals;

at least once inputting the input signals into a plurality of building blocks arranged in a cascade configuration;

sequentially approximately decorrelating each of the input signals from each other of the input signals; and

generating a filtered output signal;

wherein said decorrelating includes each building block generating a complex adaptive weight w_{med} according to

$$w_{med} = \underset{k=1\ to\ K}{MED}\left[real\left(\frac{z(k)^*}{x(k)^*} \right) \right] + j\left\{ \underset{k=1\ to\ K}{MED}\left[imag\left(\frac{z(k)^*}{x(k)^*} \right) \right] \right\}$$

and generating a local output signal utilizing the complex adaptive weight,

each building block including a local main input channel which receives a local main input signal, a local auxiliary input channel which receives a local auxiliary input signal, and a processing mechanism that calculates the complex adaptive weight and generates the local output signal utilizing the complex adaptive weight,

where K is the number of weight training data samples, z is the local main input signal, j is the unit imaginary number, and x is the local auxiliary input signal.